

# State of Iowa - Return on Investment Program / IT Project Evaluation

## SECTION 1: PROPOSAL

Tracking Number (For Project Office Use)

Project Name: Laboratory Information Management System (LIMS)

Date: September 25, 2000

Agency Point of Contact for Project: Daryl D. Frey, Director  
Laboratory Division  
Iowa Department of Agriculture  
and Land Stewardship

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Executive Sponsor (Agency Director or Designee) Signature: \_\_\_\_\_

Is this project necessary for compliance with a Federal standard, initiative, or statute? (If "Yes," cite specific requirement, attach copy of requirement, and explain in Proposal Summary) ☐ Yes ☒ No

Is this project required by State statute? (If "Yes," explain in Proposal Summary) ☐ Yes ☒ No

Does this project meet a health, safety or security requirement? (If "Yes," explain in Proposal Summary) ☐ Yes ☒ No

Is this project necessary for compliance with an enterprise technology standard? (If "Yes," explain in Proposal Summary) ☐ Yes ☒ No

Does this project contribute to meeting a strategic goal of government? (If "Yes," explain in Proposal Summary) ☒ Yes ☐ No

Is this a "research and development" project? (If "Yes," explain in Proposal Summary) ☐ Yes ☒ No

### PROPOSAL SUMMARY:

In written detail, explain why the project is being undertaken and the results that are expected. This includes, but is not limited to, the following:

1. A pre-project (before implementation) and a post-project (after implementation) description of the system or process that will be impacted.

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2. A pre-project (before implementation) and a post-project (after implementation) description of the system or process that will be impacted.

Pre-Project:

Laboratory personnel are currently networked locally and able to access LAN software and communication technologies consistent with the capabilities of office, administrative personnel. However, the management of data generated by sample receipt, processing, analysis and reporting are performed manually with substantial duplication.

Post-Project:

Once a Laboratory Information Management System (LIMS) is installed, the laboratories will enjoy efficiencies not experienced in the past. Virtually every administrative function will be impacted by this system. These administrative functions include sample receipt, sample preparation, sample assignment, sample results recording, supervisory review, administrative review, quarterly and annual reports. The Laboratory Division's view of work post-project is that the LIMS will dramatically alter the way the division conducts virtually all aspects of its work.

3. A summary of the extent to which the project provides tangible and intangible benefits to either Iowa citizens or to State government. Included would be such items as qualifying for additional matching funds, improving the quality of life, reducing the government hassle factor, providing enhanced services, improving work processes, complying with enterprise technology standards, meeting a strategic goal, avoiding the loss of matching funds, avoiding program penalties/sanctions or interest charges, avoiding risks to health/security/safety, complying with federal or state laws, etc.

Tangible Benefits:

The tangible benefits include:

1. significant improvement in data accuracy
2. reduction or elimination of transposing errors
3. significant improvement in efficiencies from reduced redundancies of effort
4. elimination of most, if not all of the non-technical and repetitive activities inherent in the laboratory
5. elimination of the paper chase involved in obtaining historic information and reporting
6. creation of immediate detailed current and historical information for proactive planning and reactive management decisions
7. creation of new control mechanism to preserve the integrity of laboratory data, and
8. increased workload management with no additional personnel expense.

Intangible Benefits:

The intangible benefits include:

1. improved job satisfaction from technological enhancements
2. potential for reduced turnover

3. greater overall productivity, and
4. opportunity for broader understanding of technology and positive impact on the work place.

Project Stakeholders: The project stakeholders include all laboratory analysts and assistants, all laboratory supervisors, all division bureau chiefs and administrative support personnel.

Impact on Project Stakeholders:

Laboratory Analysts and Assistants: These employees are impacted by the project primarily through the reduction of duplication in sample record keeping and ease of access to the status of every sample pending analysis, every sample under analysis and all historical data on previously analyzed samples.

Laboratory Supervisors: These employees are primarily impacted by the project through enhanced quality control capabilities, improved monitoring capabilities of sample analyses in-process, simplified result reporting capabilities, improved re-testing protocols, and improved sample data review and retrieval capabilities.

Division Bureau Chiefs: These employees are primarily impacted by the project through ease of access to sample results and decision-making, ease in determining precise status of any sample in the analytical process.

Administrative Support Personnel: These employees are primarily impacted by the project through the automation of the reporting laboratory activities in quarterly and annual reports.

Improving the Quality of Life: This request will improve the quality of life for laboratory employees and administrative staff by streamlining and simplifying the management of data produced by the Division's laboratories.

Reducing the Government Hassle Factor: Customers of the division will experience a reduced hassle factor when the LIMS enables administrative staff to communicate accurately, consistently, and quickly to customer requests.

Providing Enhanced Services: See "Reducing the Government Hassle Factor" above.

Improving Work Processes: The LIMS will dramatically improve laboratory analytical processes by automating data management within the Division.

Contribution to Meeting a Strategic Goal of Government: Though an intangible benefit of the LIMS, this request will take an important step towards connecting rural lowans to new technology. Through ease of access to current and historic laboratory data, rural lowans can make meaningful choices among regulated businesses to determine which businesses to patronize.

## **SECTION 2: PROJECT PLAN**

Individual project plans will vary depending upon the size and complexity of the project. A project plan includes the following information:

### **1. Agency Information**

**Project Executive Sponsor Responsibilities:** Identify, in Section I, the executive who is the sponsor of the project. The sponsor must have the authority to ensure that adequate resources are available for the entire project, that there is commitment and support for the project, and that the organization will achieve successful project implementation.

Patty Judge, Secretary of Agriculture

**Organization Skills:** Identify the skills that are necessary for successful project implementation. Identify which of these skills are available within the agency and the source(s) and acquisition plan for the skills that are lacking.

All skills necessary to implement this project currently exist within the IDALS.

### **2. Project Information**

**Mission, Goals, Objectives:** The project plan should clearly demonstrate that the project has developed from an idea to a detailed plan of action. The project plan must link the project to an agency's mission, goals, and objectives and define project objectives and how they will be reached. The project plan should include the following:

- A. **Expectations:** A description of the purpose or reason that the effort is being undertaken and the results that are anticipated.

The purpose for undertaking this project is to automate laboratory data management with the expectation that the project will result in substantial efficiencies.

- B. **Measures:** A description of the set of beliefs, tradeoffs and philosophies that govern the results of the project and their attainment. How is the project to be judged or valued? What criteria will be used to determine if the project is successful? What happens if the project fails?

The governing philosophy, which serves to underpin this proposal, is simply that there exists through various proprietary LIMS systems the capability to change forever the way in which data is managed in the division by making laboratory data more user friendly, more readily accessible and more accurate. The project will be judged on the basis of this philosophy.

The criterion to determine if the project is successful includes observing changes in sample management consistent with vendor assurance as to the capabilities of the system.

The technology to install and operate an effective LIMS is not new, at least by technology standards. Because LIMS technology has existed for several years and is widely used at other laboratories, the chances the project will fail are virtually zero.

- C. **Environment:** Who will provide input (e.g., businesses, other agencies, citizens) into the development of the solution? Are others creating similar or related projects? Are there cooperation opportunities?

Cooperation opportunities are abundant among agriculture laboratories in other states, many of whom are operating LIMS systems. As a result, there will not be a need to re-invent the wheel to select, install and implement the LIMS.

- D. **Project Management and Risk Mitigation:** A description of how you plan to manage the project budget, project scope, vendors, contracts and business process change (if applicable). Describe how you plan to mitigate project risk.

Working with agricultural laboratories in other states, who are currently using LIMS technologies, will mitigate project risk.

- E. **Security / Data Integrity / Data Accuracy / Information Privacy:** A description of the security requirements of the project? How will these requirements be integrated into the project and tested. What measures will be taken to insure data integrity, data accuracy and information privacy?

Not applicable because the LIMS is for internal use on the division's local area network.

### 3. **Current Technology Environment (Describe the following):**

#### A. **Software (Client Side / Server Side / Midrange / Mainframe)**

- Application software
- Operating system software
- Interfaces to other systems: Identify important or major interfaces to internal and external systems

Proprietary vendor software to be determined through applicable bidding processes.

OS Software – Client: Windows 95 Server: Netware 5.0, NT 4.0

#### B. **Hardware (Client Side / Server Side / Mid-range / Mainframe):**

- Platform, operating system, storage and physical environmental requirements.
- Connectivity and Bandwidth: If applicable, describe logical and physical connectivity.
- Interfaces to other systems: Identify important or major interfaces to internal and external systems.

Compaq Proliant 3000 – Netware 5.0:	68 GB
Compaq Proliant 2500 – Microsoft IIS	17 GB
Compaq Proliant 1500 – Microsoft Exchange 5.0	6 GB

Servers are connected by 100MB Ethernet, workstations switched 10 MB

16 MB Token Ring connection to State backbone/Internet

#### 4. Proposed Environment (Describe the following):

##### A. Software (Client Side / Server side / Mid-range / Mainframe)

- Application software.
- Operating system software.
- Interfaces to other systems: Identify important or major interfaces to internal and external systems.
- General parameters if specific parameters are unknown or to be determined.

Proprietary vendor software to be determined through applicable bidding processes.

##### B. Hardware (Client Side / Server Side / Mid-range / Mainframe)

- Platform, operating system, storage and physical environmental requirements.
- Connectivity and Bandwidth: If applicable, describe logical and physical connectivity.
- Interfaces to other systems: Identify important or major interfaces to internal and external systems.
- General parameters if specific parameters are unknown or to be determined.

Data acquired by the LIMS will be stored in an Access database on a SQL server currently in use on the Department's Local Area Network.

**Data Elements:** If the project creates a new database the project plan should include the specific software involved and a general description of the data elements.

A new database will be created in Microsoft Access which will contain all records generated by the LIMS.

**Project Schedule:** A schedule that includes: time lines, resources, tasks, checkpoints, deliverables and responsible parties.

Schedule:

July – September, 2001:	Identify software vendors, put purchase request out on bid.
October – December, 2001:	Receive and install software
January – March, 2002:	With assistance from software vendor, run program in parallel with existing hard copy data management systems.
July, 2002:	LIMS fully operational

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Responsible Parties:  
Daryl D. Frey, Director, Laboratory Division

Resources:

IT staff to work with vendor to install the software and modify the software as needed to meet local needs.

## **SECTION 3: Return On Investment (ROI) Financial Analysis**

### **Project Budget:**

Provide the estimated project cost by expense category.

Personnel .....	\$ -0-
Software .....	\$ 36,895
Hardware.....	\$ 7,405
Training .....	\$ 29,700
Facilities .....	\$ -0-
Professional Services.....	\$ 6,000
Supplies .....	\$ -0-
Other (Specify).....	\$ -0-
Total.....	\$ 80,000

### **Project Funding:**

Provide the estimated project cost by funding source.

State Funds.....	\$ 80,000	.....	100 % of total cost
Federal Funds.....	\$ - 0 -	.....	0 % of total cost
Local Gov. Funds.....	\$ - 0 -	.....	0 % of total cost
Private Funds .....	\$ - 0 -	.....	0 % of total cost
Other Funds (Specify).....	\$ - 0 -	.....	0 % of total cost
Total Cost: .....	\$ 80,000	.....	100 % of total cost

Provide the estimated project cost by funding source.

State Funds.....	\$ 80,000	.....	100% of total cost
Federal Funds.....	\$ _____	.....	0 % of total cost
Local Gov. Funds .....	\$ _____	.....	0 % of total cost
Private Funds .....	\$ _____	.....	0 % of total cost
Other Funds (Specify) .....	\$ _____	.....	0 % of total cost
Total Cost: .....	\$ 80,000	.....	100% of total cost



Provide the estimated project cost by fiscal year.

FY 02 \$ 80,000

FY 03 \$ 6,000

FY 04 \$ 6,000

How much of the cost would be incurred by your agency  
from normal operating budgets (staff, equipment, etc.)? .....\$ 0 0%

How much of the cost would be paid by requested State IT project funds? \$ 80,000 100%

Identify, list, and quantify all additional annual maintenance expenses (State \$\$) related to the project.

No additional annual maintenance is anticipated because the LIMS systems is largely software that can operate on an existing network. Any maintenance expenses would be limited to user workstations which are already in use as a part of the existing network.

Identify, list, and quantify any other future additional expenses (State \$\$) related to the project.

Additional future expenses are limited to software maintenance agreements at \$6,000 per year, which are identified as estimated project costs in FY-03 and FY-04 above.

### ROI Financial Worksheet Directions (Attach Written Detail as Requested):

**Annual Pre-Project Cost** -- Quantify, in written detail, all actual State government direct and indirect costs (personnel, support, equipment, etc.) associated with the activity, system or process prior to project implementation. This section should be completed only if State government costs are expected to be reduced as a result of project implementation.

(see response to Annual Post-Project Cost below)

**Annual Post-Project Cost** -- Quantify, in written detail, all estimated State government direct and indirect costs associated with activity, system or process after project implementation. This section should be completed only if State government costs are expected to be reduced as a result of project implementation.

Annual Pre-Project and Post-Project Costs Detail:

Pre-Project Costs		Post-Project Costs
	FEED BUREAU	
\$ 94	Public Service Supervisor	\$ 47
23,816	Clerk Typist Temporary	0
4,760	Ag Product Inspectors	2,335
	FEED/FERTILIZER LAB	
\$ 12,901	Laboratory Supervisor	0
3,094	Laboratory Assistant	0
2,844	Chemist	0
2,844	Chemist	0
2,844	Chemist	0
2,844	Chemist	0
1,728	Laboratory Assistant	0
	FERTILIZER BUREAU	
\$ 1,938	Administrative Assistant	969
1,485	Administrative Assistant	743
	PESTICIDE BUREAU	
\$ 1,600	Program Planner	\$ 805
	ENTOMOLOGY & SEED	
\$ 14,751	Administrative Assistant/ Clerk Specialist	\$ 2,459
	FOOD/DAIRY LABORATORY	
\$ 2,977	Laboratory Supervisor	\$ 2,382
	TOTALS	
\$ 80,520		\$ 9,740

**State Government Benefit** -- Subtract the total “Annual Post-Project Cost” from the total “Annual Pre-Project Cost.” This section should be completed only if State government costs are expected to be reduced as a result of project implementation.

**Citizen Benefit** -- Quantify, in written detail, the estimated annual value of the project to Iowa citizens. This includes the “hard cost” value of avoiding expenses (hidden taxes) related to conducting business with State government. These expenses may be of a personal or business nature. They could be related to transportation, the time expended on or waiting for the manual processing of governmental paperwork such as licenses or applications, taking time off work, mailing, or other similar expenses.

Customers who submit water tests to the laboratory for analysis will save approximately one hour at the minimum wage per sample or (1,692 water samples)(1 hour)(\$5.15 per hour<sup>1</sup>) = \$8,714

**Opportunity Value/Risk or Loss Avoidance Benefit** -- Quantify, in written detail, the estimated annual benefit to Iowa citizens or to State government. This could include such items as qualifying for additional matching funds, avoiding the loss of matching funds, avoiding program penalties/sanctions or interest charges, avoiding risks to health/security/safety, avoiding the consequences of not complying with State or federal laws, providing enhanced services, avoiding the consequences of not complying with enterprise technology standards, etc.

**Total Annual Project Benefit** -- Add the values of all annual benefit categories.

**Total Annual Project Cost** -- Quantify, in written detail, the estimated annual new cost necessary to implement and maintain the project including consulting fees, equipment retirement, ongoing expenses (i.e. labor, etc.), other technology (hardware, software and development), and any other specifically identifiable project related expense. In general, to calculate the annual hardware cost, divide the hardware and associated costs by three (3), the useful life. In general, to calculate the annual software cost, divide the software and associated costs by four (4), the useful life. This may require assigning consulting fees to hardware cost or to software cost. A different useful life may be used if it can be documented.

**Benefit / Cost Ratio** -- Divide the “Total Annual Project Benefit” by the “Total Annual Project Cost.” If the resulting figure is greater than one (1.00), then the annual project benefits exceed the annual project cost. If the resulting figure is less than one (1.00), then the annual project benefits are less than the annual project cost.

**ROI** -- Subtract the “Total Annual Project Cost” from the “Total Annual Project Benefit” and divide by the amount of the requested State IT project funds.

**Benefits Not Cost Related or Quantifiable** -- List the project benefits and articulate, in written detail, why they (IT innovation, unique system application, utilization of new technology, hidden taxes, improving the quality of life, reducing the government hassle factor, meeting a strategic goal, etc.) are not cost related or quantifiable. Rate the importance of these benefits on a “1 – 10” basis, with “10” being of highest importance. Check the “Benefits Not Cost Related or Quantifiable” box in the applicable row.

<sup>1</sup> The minimum wage is used in this instance because actual rates of pay of customer’s employees cannot be determined. As a result, we have used the most conservative rate of pay estimate, the minimum wage of \$5.15 per hour.

## ROI Financial Worksheet

### Annual Pre-Project Cost - How You Perform The Function(s) Now

FTE Cost (salary plus benefits):	\$ 80,520
Support Cost (i.e. office supplies, telephone, pagers, travel, etc.):	0
Other Cost (expense items other than FTEs & support costs, i.e. indirect costs if applicable, etc.):	0
<b>A. Total Annual Pre-Project Cost:</b>	<b>\$ 80,520</b>

### Annual Post-Project Cost – How You Propose to Perform the Function(s)

FTE Cost:	\$ 9,740
Support Cost (i.e. office supplies, telephone, pagers, travel, etc.):	0
Other Cost (expense items other than FTEs & support costs, i.e. indirect costs if applicable, etc.):	0
<b>B. Total Annual Post-Project Cost:</b>	<b>\$ 9,740</b>
<b>State Government Benefit ( = A-B ):</b>	<b>\$ 70,780</b>

### Annual Benefit Summary

State Government Benefit:	\$ 70,780
Citizen Benefit (including quantifiable “hidden taxes”):	\$ 8,714
Opportunity Value and Risk/Loss Avoidance Benefit:	0
<b>C. Total Annual Project Benefit:</b>	<b>\$ 79,494</b>
<b>D. Total Annual Project Cost:</b>	<b>\$ 20,617</b>
<b>Benefit / Cost Ratio (C / D):</b>	<b>3.86</b>
<b>ROI (C – D / Requested State IT Project Funds):</b>	<b>73.6%</b>

☐ **Benefits Not Cost Related or Quantifiable (including non-quantifiable “hidden taxes”)**

